

Date: Monday, 28/04/2008 11:34:35 AM
 User: Linda Lacelle

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	A119 BUBBLE WINDOW
Job Number :	38842A		
Estimate Number :	12911		
P.O. Number :		Part Number :	D36242
This Issue :	28/04/2008	S.O. No. :	
Prsht Rev. :	NC	Drawing Number :	D3624 REV. D
First Issue :	/ /	Project Number :	N/A
Previous Run :	37199A	Drawing Revision :	REV. D
	Type :	Material :	
	THERMOFORMING	Due Date :	05/05/2008
Written By :		Qty:	2
Checked & Approved By :		Um:	Each
Comment :	Est. A Thermoform in house 6/27/2007 DL Est B. Revised due to corrupt operating Program. 7/23/2007 DL Est C. Dwg. Rev. change 7/30/2007 Est. D. Dwg. Rev. Updated 4/25/2008 verified by:DD		

Additional Product

Job Number:



Seq. #:

Machine Or Operation:

Description :

1.0

MACRYLICS177

0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SH



Comment: Qty.: 10.0000 sf(s)/Unit Total: 20.0000 sf(s)
 0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SH

1) Batch # M107291

DL 08.04.28

2.0

HAND FINISH TH

HAND FINISHING THERMOFORMING

**Comment:** HAND FINISHING THERMOFORMING

1) Cut Blanks to 30" by 48"

DL 08.04.28

3.0

THERMOFORMING

THERMOFORMING MACHINE

**Comment:** THERMOFORMING MACHINE

Thermoform as per Dwg. D3624 and Folio FTA 004

Dwg. Rev. D
 Folio Rev. E

DL 08.04.28

4.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE

**Comment:** INSPECT PARTS AS THEY COME OFF MACHINE

1) Check Surface finish for undesired marks, voids, dimples etc.





2) Check depth of bubble to ensure conformity to drawing tolerances.

DL 08.04.28

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: D3624-Z PAR #: _____ Fault Category: _____ NCR: Yes No DQA: D Date: 08/18/29
 QA: N/C Closed: _____ Date: _____

NCR: 38842A		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08.05.01	3	Qty(1) the depth is 1425" TRAILING EDGE ANGLE IS 93°.	 08.05.01 PV QSI 042	PART ACCEPTABLE REF DS EMAIL	N/A	 08.05.02	 08.05.01 PV QSI 042	 08.05.02

NOTE: Date & initial all entries

Date: Monday, 28/04/2008 11:34:35 AM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: A119 BUBBLE WINDOW

Job Number: 38842A

Part Number: D36242

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

HAND FINISH TH

HAND FINISHING THERMOFORMING



Comment: HAND FINISHING THERMOFORMING

- 1) Trim to Finished Dimensions
- 2) Buff out any light scratches or blemishes
- 3) Etch in part number and batch number

BB 08/04/29

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

08-09-02 (2)

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08-09-02 (2)

8.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

P/N 38842

08/10/2 3 (2)

9.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/10/27

Job Completion



MF 08-10-2

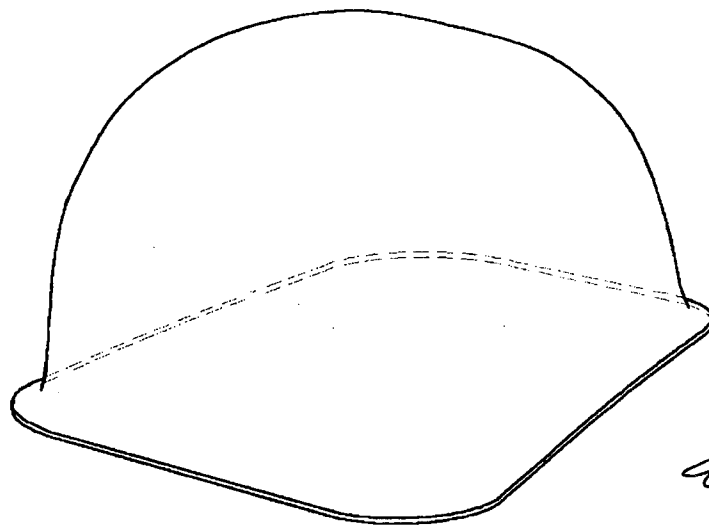
W/O:		WORK ORDER CHANGES						
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector	
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

NOTE: Date & initial all entries



D3624-2 BUBBLE WINDOW

Wb 38842A

NOTES:

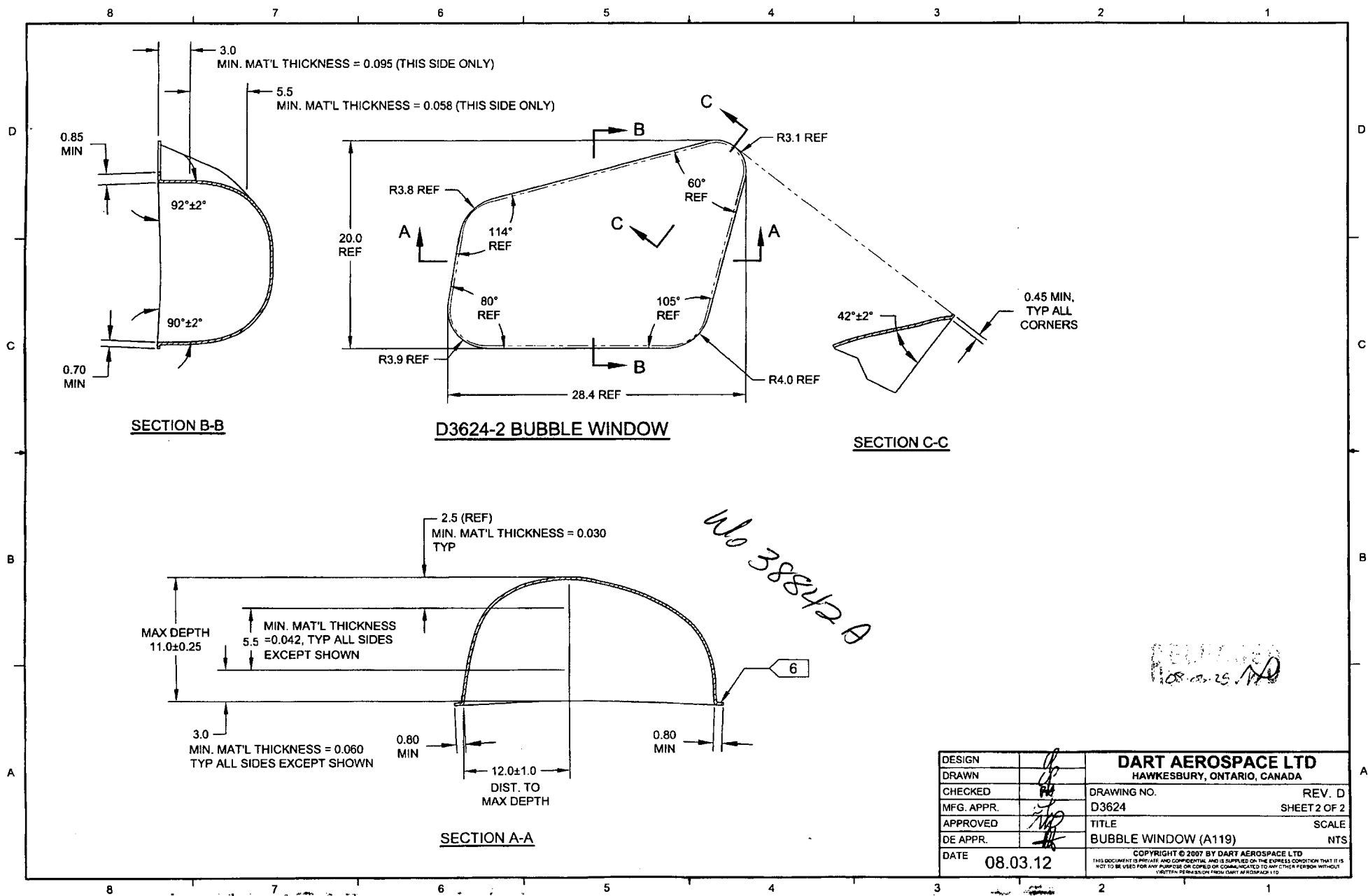
- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C
OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425
0.177 TO 0.188 THICK (STOCK, REF DART SPEC M-ACRYLIC-S)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
 - 6) IDENTIFICATION: ENGRAVE P/N & B/N ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005".
 - 7) WEIGHT: 2.95 lbs
 - 8) FORM PER DT8953 AND QSI 022
- FORMING PROCESS: (a) DRAPE OVER DT8953 MOLD
(b) HEAT TO 290°F
(c) VACUUM FORM TO SPECIFIED HEIGHT
(d) LET COOL TO AT LEAST 100°F BEFORE HANDLING
(e) TRIM FLANGE USING DT8954







D	REDRAW, REFORMAT, RMV SHAPE TOOL, ADD SEC B-B (2C8) & C-C (2C3), ADD FLANGE & WALL & WALL ANGLE DIMS, UPDATE MATL SPEC (1B8)	CP	08.03.12
C	ADD TOOL TO CONTROL BUBBLE SHAPE	CP	07.06.27
B	11.0" DEPTH WAS 12.0"	CP	07.05.24
A	NEW ISSUE	CP	07.06.27
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.03.12		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. D
D3624 SHEET 1 OF 2
TITLE SCALE
BUBBLE WINDOW (A119) NTS

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DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D3624	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		BUBBLE WINDOW (A119)	NTS
DATE	08.03.12	COPYRIGHT © 2007 BY DART AEROSPACE LTD	
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DART AEROSPACE LTD	WORK ORDER:	38842 A.
Description: A119 Bubble Window.	Part Number:	D3624-2 #1
Inspection Dwg: D3624 Rev: D		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

(Step 4) Thermoforming
Visual Inspection Sign-off

Description	Initials
Depth of bubble within tolerances	Dh
Acceptable shape definition	Dh
Free of visual flaws (bumps, cracks, voids, etc.)	Dh

(Step 6) Trimming
FAI Checklist

Inspect dimensions highlighted on inspection sheet drawing D3624 Rev. D and record below

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
depth of bubble 11"	+/- 0.25"	10.875	✓			
leading edge at 3" high	0.095" min thick	0.098	✓			
leading edge at 8.5" high	0.058" min. thick	0.063	✓			
trailing edge at 3" high	0.060" min thick	0.080	✓			
trailing edge at 8.5" high	0.042" min thick	0.050	✓			
top 2.5" of bubble	0.030" min thick	0.038	✓			
leading edge angle 92°	+/- 0.2°	92°	✓			
trailing edge angle 90°	+/- 0.2°	90°	✓			
width leading edge flange	0.85" min	0.95"	✓			
width training edge flange	0.70" min.	0.85"	✓			

Measured by: Dh	Audited by: S	Prototype Approval: JH
Date: 08.04.29	Date: 08/10/26	Date: 11/1/26

Rev	Date	Change	Revised by	Approved
		New Issue		

DART AEROSPACE LTD	WORK ORDER:	38842A
Description: 7119 Bubble Window.	Part Number:	D3624-2
		#2
Inspection Dwg: D3642 Rev: D		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

(Step 4) Thermoforming
Visual Inspection Sign-off

Description	Initials
Depth of bubble within tolerances	OK
Acceptable shape definition	OK
Free of visual flaws (bumps, cracks, voids, etc.)	OK

(Step 6) Trimming FAI Checklist

Inspect dimensions highlighted on inspection sheet drawing D3624 Rev. D and record below

Drawing	Tolerance	Actual	Accept	Reject	Method of Inspection	Comments
Dimension		Dimension				
depth of bubble 11"	+/- 0.25"	10.25"		✓		Acceptable per Eng
leading edge at 3" high	0.095" min thick	0.098"	✓			Pro's position
leading edge at 8.5" high	0.058" min. thick	0.077"	✓			
trailing edge at 3" high	0.060" min thick	0.095"	✓			
trailing edge at 8.5" high	0.042" min thick	0.063"	✓			
top 2.5" of bubble	0.030" min thick	0.050"	✓			
leading edge angle 92°	+/- 0.2°	94°	✓			
trailing edge angle 90°	+/- 0.2°	93°	✓			
width leading edge flange	0.85" min	.90	✓			
width training edge flange	0.70" min.	.792	✓			

Measured by: <u>OK</u>	Audited by: <u>S</u>	Prototype Approval: <u>OK</u>
Date: <u>08-04-20</u>	Date: <u>08/11/20</u>	Date: <u>08</u>

Rev	Date	Change	Revised by	Approved
		New Issue		

Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: April 30, 2008 6:19 PM
To: 'Chris Provencal'
Cc: 'Mike Petsche'
Subject: RE: NCR D3624-2 Bubble Window (A119)

Chris,

Acceptable deviation.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Tuesday, April 29, 2008 12:47 PM
To: 'David Shepherd'
Cc: 'Mike Petsche'; D Leger
Subject: NCR D3624-2 Bubble Window (A119)

Qty(1) D3624-2, the depth is 10.25" (should be 11.0"+/-0.25"). The trailing edge angle is 93 deg, instead of 90+/-2 deg. All the thicknesses are OK.

I think its OK, the depth is about what we get for the R44. I talked with Bill, he's OK with the depth if we are. This is not one of the ones shipped out this week.

-Chris

No virus found in this incoming message.

Checked by AVG.

Version: 7.5.524 / Virus Database: 269.23.6/1403 - Release Date: 4/29/2008 7:26 AM

No virus found in this outgoing message.

Checked by AVG.

Version: 7.5.524 / Virus Database: 269.23.6/1407 - Release Date: 4/30/2008 11:35 AM